

Managing Rabies Virus Exposures in the Emergency Department, Public Health Clinic, and Your Practice: Guidelines and Recommendations for Postexposure Prophylaxis and the Use of Human Rabies Immune Globulin

With the risk of exposure to rabies virus increasing in a number of states¹ and the consequences of a missed diagnosis or inadequate treatment potentially fatal, a standardized approach to patient management can help to keep your emergency department, public health clinic, or private practice prepared. The most recent guidelines on postexposure prophylaxis (PEP) from the United States Advisory Committee on Immunization Practices (ACIP)² are the best management tool available.

Administration of PEP after a rabies virus exposure is a medical urgency, and decisions about treatment should not be delayed.³ The ACIP guidelines were developed by a national team of biomedical experts as a quick resource for clinicians facing potential cases of human exposure.

PEP Overview

PEP consists of local wound treatment, the human diploid cell rabies vaccine, and human rabies immune globulin (HRIG). The PEP protocol can be divided into 2 categories²:

Patients who HAVE NOT been previously vaccinated	Patients who HAVE been previously vaccinated ^a
Local wound care	Local wound care
Administer HRIG on the same day as the first dose of vaccine (day 0) – Can be administered up to 7 days after the first dose of vaccine	No administration of HRIG
Administer rabies vaccine on days 0, 3, 7, and 14 ^b	Administer rabies vaccine on days 0 and 3
Immunocompromised patients receive a fifth dose of vaccine on day 28	

^a Defined as any person with a history of preexposure vaccination with human diploid cell vaccine (HDCV), purified chick embryo cell vaccine (PCECV), or rabies vaccine adsorbed (RVA); prior PEP with HDCV, PCECV or RVA; or previous vaccination with any other type of rabies vaccine and a documented history of antibody response to the prior vaccination.

^b Endorsed by the American Academy of Pediatrics.⁴

Who Should Receive PEP?

The first question to ask a patient with a possible rabies virus exposure (because it affects all subsequent management decisions) is whether he/she has previously been vaccinated for rabies.² Once you have determined vaccination status, ask the patient what type of animal he/she was exposed to (domestic or wild) and the nature of the exposure (bite, nonbite, provoked or unprovoked attack, etc).³

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Keep in mind that some animals carry a higher risk of rabies than others. Depending on the area of the country, higher-risk wild animals may include raccoons, bats, skunks, and foxes.¹ Also, be aware that bites are not the only type of possible exposure; introduction of animal saliva or neural tissue into a patient's open skin or onto mucous membranes also constitutes a potential exposure.³

Bats are a special case. ANY direct contact with bats requires PEP, unless the patient is ABSOLUTELY CERTAIN that a bite, scratch, or mucous membrane exposure to saliva or neural tissue did NOT occur, or unless the bat tests negative for rabies.³ PEP should also be considered if a bat is found in the same room with a sleeping person, a child, a mentally disabled person, or an intoxicated person.³

Any unprovoked attack from a domestic animal (eg, cat or dog) is also considered a high-risk exposure.³

Wound Care

Regardless of vaccination status, local wound care is the first step of PEP. Bite wounds should be managed just like any other puncture wound. First, thoroughly cleanse the wound with soap and water. Then irrigate the wound with a virucidal agent, if available.²

Using HRIG

Appropriate use of HRIG is essential in patients who HAVE NOT been previously vaccinated for rabies.² HRIG provides immediate passive antibody coverage against the rabies virus until patients respond to the rabies vaccine by actively producing antibodies.³

Dose and Administration of HRIG

The dose of HRIG is determined by the patient's weight: 20 international units per kilogram.⁵

Sample patient	Weight	Dosing recommendation
Adult	80 kg (176.4 lbs)	80 kg x 20 IU/kg = 1600 IU Recommend one 10-mL vial and one 2-mL vial
Adult	75 kg (165.4 lbs)	75 kg x 20 IU/kg = 1500 IU Recommend one 10-mL vial
Adult/Adolescence	60 kg (132 lbs)	60 kg x 20 IU/kg = 1200 IU Recommend four 2-mL vials
Child	40 kg (88 lbs)	40 kg x 20 IU/kg = 800 IU Recommend three 2-mL vials
Child	30 kg (66 lbs)	30 kg x 20 IU/kg = 600 IU Recommend two 2-mL vials

HRIG should be administered DIRECTLY into and around the wound, injecting as much volume in that area as possible. For small wounds like fingers, toes, ears, or the face, inject as much as possible into the wound area, then administer the remainder of the dose intramuscularly at a site distant from the rabies vaccine administration site.²

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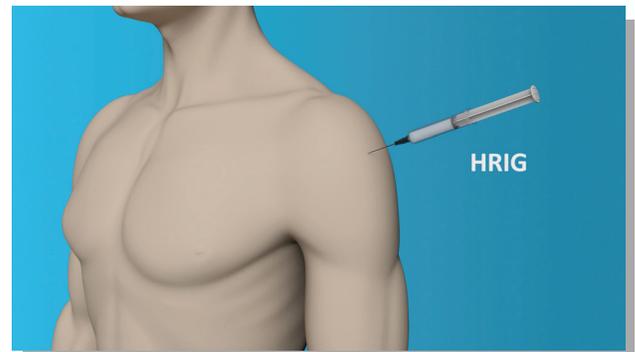
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For example, a patient with a wound to the LEFT thumb would receive as much HRIG as possible directly into that thumb, with the remainder of the dose given intramuscularly into the LEFT shoulder. This would be followed by the first dose of the rabies vaccine injected intramuscularly into the RIGHT shoulder.

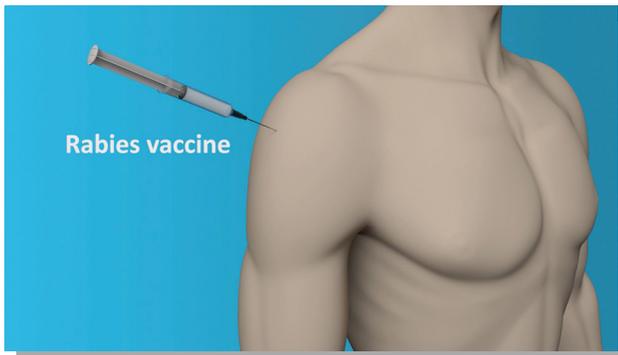
HyperRAB® S/D (rabies immune globulin [human]) should be given with caution to patients with a history of prior systemic allergic reactions following the administration of human immunoglobulin preparations.



Administer HRIG directly into wound area in LEFT thumb



Administer any remaining HRIG dose in LEFT shoulder



Administer first dose of rabies vaccine in RIGHT shoulder

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Common Mistakes When Administering HRIG

NEVER inject HRIG into the gluteal area because of the risk of injury to the sciatic nerve.⁵

HRIG should never be administered in the same syringe or needle or in the same anatomical site as vaccine.⁵

HRIG should NOT be administered in patients who have been previously vaccinated with the rabies vaccine.²

Soreness at the site of injection and mild temperature elevations may be observed at times. Sensitization to repeated injections has occurred occasionally in immunoglobulin-deficient patients. Angioneurotic edema, skin rash, nephrotic syndrome, and anaphylactic shock have rarely been reported after intramuscular injection, so that a causal relationship between immunoglobulin and these reactions is not clear.⁵

How Much HRIG Should Be Stocked in Your Hospital or Public Health Clinic?

Keep an adequate supply of HRIG on hand. Typically, 5000 international units of HRIG in the 2-mL size vial, which will treat a family of 5, is sufficient.

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IMPORTANT SAFETY INFORMATION

Rabies vaccine and HyperRAB® S/D (rabies immune globulin [human]) should be given to all persons suspected of exposure to rabies with one exception: persons who have been previously immunized with rabies vaccine and have a confirmed adequate rabies antibody titer should receive only vaccine. HyperRAB S/D should be administered as promptly as possible after exposure, but can be administered up to the eighth day after the first dose of vaccine is given.

HyperRAB S/D should be given with caution to patients with a history of prior systemic allergic reactions following the administration of human immunoglobulin preparations.

The attending physician who wishes to administer HyperRAB S/D to persons with isolated immunoglobulin A (IgA) deficiency must weigh the benefits of immunization against the potential risks of hypersensitivity reactions. Such persons have increased potential for developing antibodies to IgA and could have anaphylactic reactions to subsequent administration of blood products that contain IgA.

As with all preparations administered by the intramuscular route, bleeding complications may be encountered in patients with thrombocytopenia or other bleeding disorders.

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Administration of live virus vaccines (e.g., MMR) should be deferred for approximately 3 months after rabies immune globulin (human) administration.

HyperRAB S/D is made from human plasma. Products made from human plasma may contain infectious agents, such as viruses, and, theoretically, the Creutzfeldt-Jakob disease (CJD) agent that can cause disease. There is also the possibility that unknown infectious agents may be present in such products.

Please see HyperRAB S/D full Prescribing Information for complete prescribing details.

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For more information, go to www.rabieswatch.com

References

1. Dyer JL, Yager P, Orciari L, et al. Rabies surveillance in the United States during 2013. *J Am Vet Med Assoc.* 2014;245(10):1111-1123.
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